TOSHIBA

SERVICE MANUAL

LCD Color Television

46RV530U Rev.1

For Technical Bulletins, Technical Tips, or other information regarding the service of this model, visit the Toshiba America Consumer Products National Service Division website at:

www7.toshiba.com

This model is classified as a green product (*1), as indicated by the underlined serial number. This Service Manual describes replacement parts for the green product. When repairing this green product, use the part(s) described in this manual and lead-free solder (*2).
For (*1) and (*2), refer to **GREEN PRODUCT PROCUREMENT** and **LEAD-FREE SOLDER**.

IMPORTANT NOTICE

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GREEN PRODUCT PROCUREMENT

The EC is actively promoting the WEEE & RoHS Directives that define standards for recycling and reuse of Waste Electrical and Electronic Equipment and for the Restriction of the use of certain Hazardous Substances. From July 1, 2006, the RoHS Directive will prohibit any marketing of new products containing the restricted substances.

Increasing attention is given to issues related to the global environmental. Toshiba Corporation recognizes environmental protection as a key management tasks, and is doing its utmost to enhance and improve the quality and scope of its environmental activities. In line with this, Toshiba proactively promotes Green Procurement, and seeks to purchase and use products, parts and materials that have low environmental impacts.

Green procurement of parts is not only confined to manufacture. The same green parts used in manufacture must also be used as replacement parts.

LEAD-FREE SOLDER

WARNING: This product is manufactured using lead-free solder as a part of a movement within the consumer products industry at large to be environmentally responsible. **Lead-free solder must be used in the servicing and repair of this product.**

The melting temperature of lead-free solder is higher than that of leaded solder by 86ºF to 104ºF (30ºC to 40ºC). Use of a soldering iron designed for lead-based solders to repair product made with lead-free solder may result in damage to the component and or PCB being soldered. Great care should be made to ensure high-quality soldering when servicing this product especially when soldering large components, through-hole pins, and on PCBs as the level of heat required to melt lead-free solder is high.

SAFETY INSTRUCTION

WARNING: Before servicing this chassis, read the *"Safety Precaution"* and *"Product Safety Notice"* instructions below.

Safety Precaution

WARNING: Servicing should not be attempted by anyone unfamiliar with the necessary precautions on this receiver. The following are the necessary precautions to be observed before servicing this chassis.

1. An isolation transformer should be connected in the power line between the receiver and the AC line before any service is performed on the receiver.

2. Always disconnect the power plug before any disassembling of the product. It may result in electrical shock.

3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as nonmetallic control knobs, insulating covers, shields, isolation resistor-capacitor network, etc.

4. Always keep tools, product components, etc. away from children as these items may cause injury.

5. Depending on the model, use an isolation transformer or wear suitable gloves when servicing with the power on. Disconnect the power plug to avoid electrical shock when replacing parts. In some cases, alternating current is also impressed in the chassis, so electrical shock is possible if the chassis is contacted with the power on.

6. Always use the replacement parts specified for the particular model when making repairs. The parts used in products require special safety characteristics such as inflammability; voltage resistance, etc. therefore, use only replacement parts

that have these same characteristics. Use only the specified parts when the ⚠ mark is indicated in the circuit diagram or parts list.

7. Part mounting and wire routing should be the same as that used originally. For safety purposes, insulating materials such as isolation tubes or tape are sometimes used and printed circuit boards are sometimes mounted floating. Also make sure that wiring is routed and clamped to avoid parts that generate heat or use high voltage. Always follow the manufactures wiring routes / dressings.

8. Always ensure that all internal wirings are in accordance before re-assembling the external casing after a repair is completed. Do not allow internal wiring to be pinched by cabinets, panels, etc. Any error in reassembly or wiring can result in electrical leakage, flame, etc., and may be hazardous.

9. NEVER remodel the product in any way. Remodeling can result in improper operation, malfunction, electrical leakage, or flame, which may be hazardous.

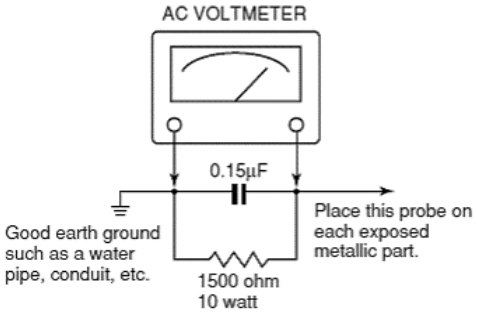
10. Always perform an AC leakage current check on the exposed metallic parts of the cabinet such as antennas, terminals, screw heads, metal overlays, control shafts, etc. to be sure that the set is safe to operate without any danger of electrical shock before returning the set to the customer.

11. To check leakage current: (After completing the work, measure the leakage current to prevent an electrical shock.)

    - Plug the AC line cord directly into a 120V AC outlet. Do not use an isolation transformer for this check.

    - Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner.

Connect a 1500 ohm 10 watt resistor, paralleled by a 0.15 µF, AC type capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and 0.15 µF capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.3 volts rms. This corresponds to 0.2 milliamps AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



Product Safety Notice

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often overlooked in a visual inspection. The protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements. Electrical components having such features are identified by the international hazard symbols on the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety as specified in the parts list may create electrical shock, fire, or other hazards.

SAFETY INSTRUCTION

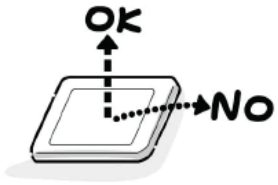
WARNING: The metal edges of the LCD module are sharp, **handle it with care.**

The LCD module can easily be damaged during disassembly or reassembly; therefore, always observe the following precautions when handling the module.

1. In the event that the screen is damaged or the liquid crystal (fluid) leaks, do not breathe in, drink, or touch this fluid. Such actions could cause toxicity or skin irritation. If this fluid should enter the mouth, rinse the mouth thoroughly with water. If the

fluid should contact the skin or clothing, wipe off with alcohol, etc., and rinse thoroughly with water. If the fluid should enter the eyes, immediately rinse the eyes thoroughly with running water.

2. When attaching the LCD module to the LCD cover, position it appropriately and fasten at the position where the display can be viewed most conveniently.



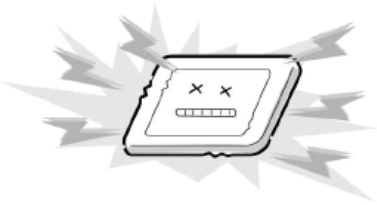
3. Carefully align the holes at all four corners of the LCD module with the corresponding holes in the LCD cover and fasten with screws. Do not strongly push on the module because any impact can adversely affect the performance. Also use caution when handling the polarized screen because it can easily be damaged.

4. If the panel surface becomes soiled, wipe with cotton or a soft cloth. If this does not remove the soiling, breathe on the surface and then wipe again. If the panel surface is extremely soiled, wipe the panel surface with CRT cleaner sprayed onto the cloth. Do not spray the cleaner on the panel. Pay attention not to scratch the panel surface.

5. Leaving water or other fluids on the panel for an extended period of time can result in discoloration or stripes. Immediately remove any type of fluid from the screen.

6. Glass is used in the panel construction. Damage can occur if dropped or struck with hard objects.

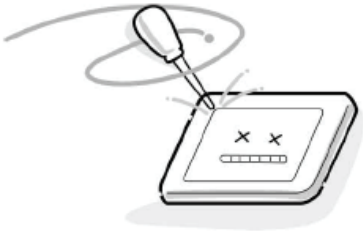
7. CMOS-LSI circuitry is used in the LCD module, so avoid damage due to static electricity. When handling the module, use a wrist ground or anchor ground.



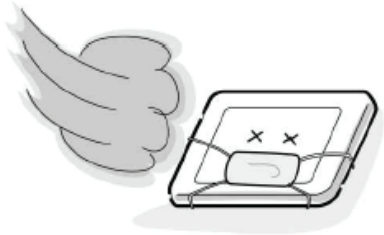
8. Do not expose the LCD module to direct sunlight or strong ultraviolet rays for extended periods.

9. Do not store the LCD module below the temperature conditions described in the specifications. Doing so could result in freezing of the liquid crystal, loss of resilience, or other damage.

10. Do not disassemble the LCD module. Such actions could result in improper operation.



11. When transporting the LCD module, do not use packing containing epoxy resin (amine) or silicon resin (alcohol or oxim). The gas generated by these materials can cause loss of polarity.



Entering Service Mode

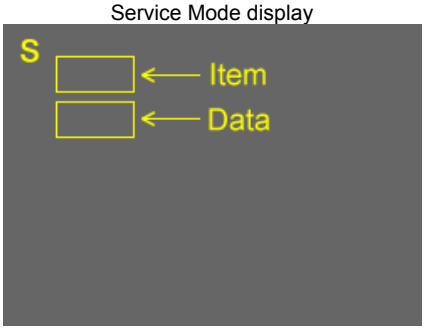
1. Set VOLUME to minimum and press MUTE button twice on the remote control.

↓

2. Press MUTE button again and hold button down.

↓

Service Mode display



3. While holding the MUTE button, press MENU button on TV set.

Selecting the Adjusting Item

Every pressing of CH ▲ or ▼ button in the service mode changes the adjustment items.

Adjusting the Data

Pressing of VOLUME ▲ or ▼ button will change the value of data in the range from 00H to FFH. The variable range depends on the adjusting item.

Exiting Service Mode

Pressing POWER button to turn off the TV once.

Setting Panel Option Data and SET-ID Data

1. Panel option data is subject to OP4 and OP5.
   Enter to service mode and select menu of OP4 or OP5 by pressing CH▲ or CH▼ during display of adjustment menu. After selecting OPT4 or OPT5, press + or - to set OPT4 or OPT5 value as table below.

2. Whenever using new MAIN PC board to the set, set the SET-ID data according to panel option data.

		Panel Maker		OPT 4				
MODEL	**SIZE**	**TOP**	**Running Change**	**TOP**	**Running Change**	**OPT 3**	**OPT 5**	**SET-ID**
RV530U	46	Samsung	-	6AH	-	60H	00H	93H

Exit from Service Mode

Pressing POWER button to turn off the TV once.

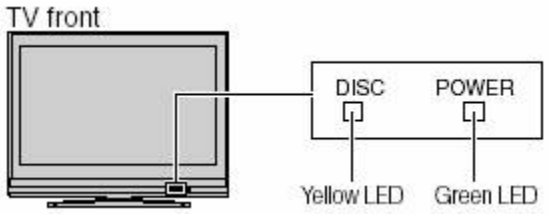
Firmware Update Process

Updating this chassis family is accomplished using an SD card furnished by Toshiba. With the unit operating, insert the card into the card slot labeled “Service only” located on either the side or back of the instrument. After the card is inserted, simply follow the step by step update instructions displayed on the screen.

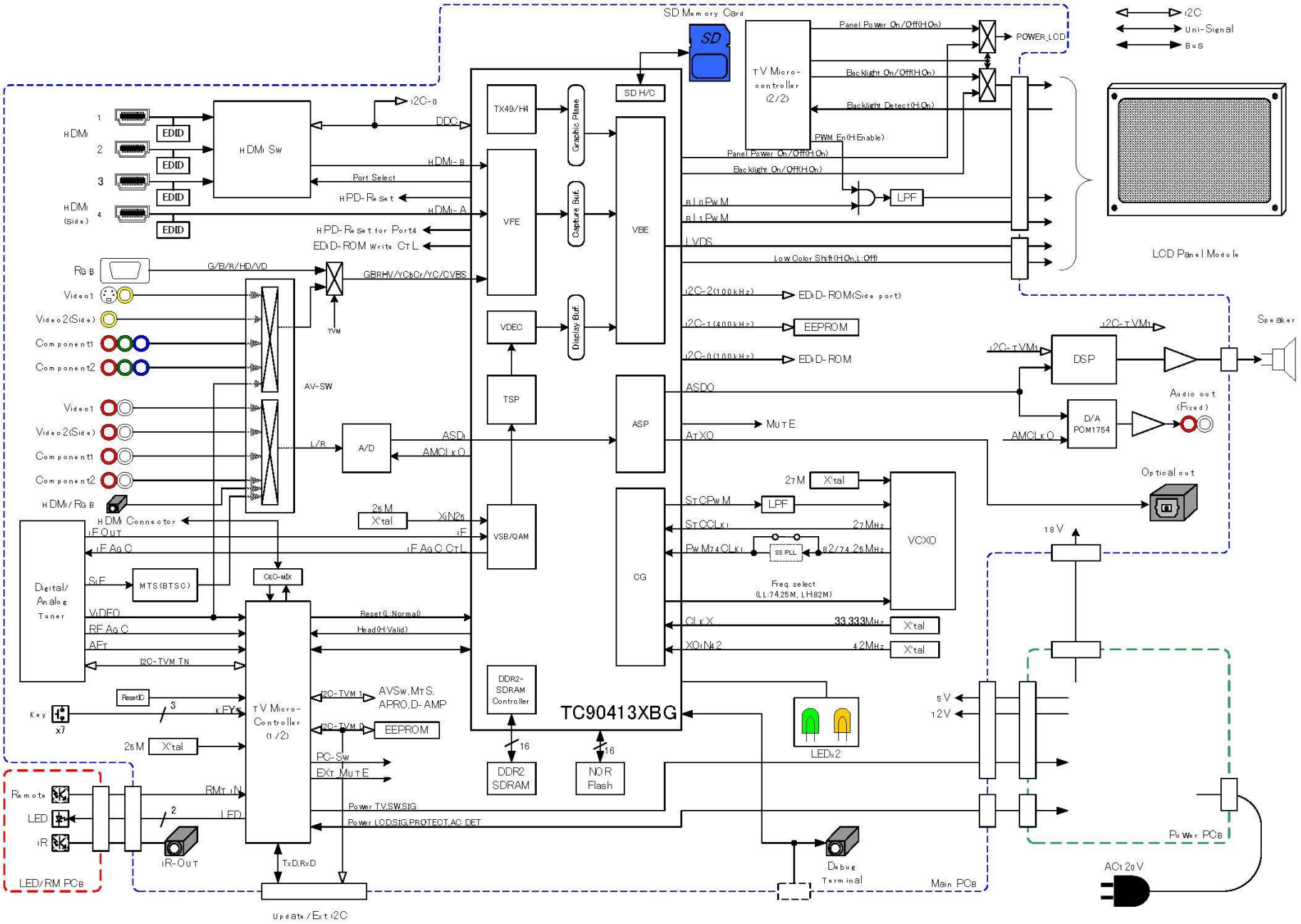
LED BLINK CODES

The green and yellow LED lights on the TV (at the bottom center of the TV) indicate the TV's status, as described below:

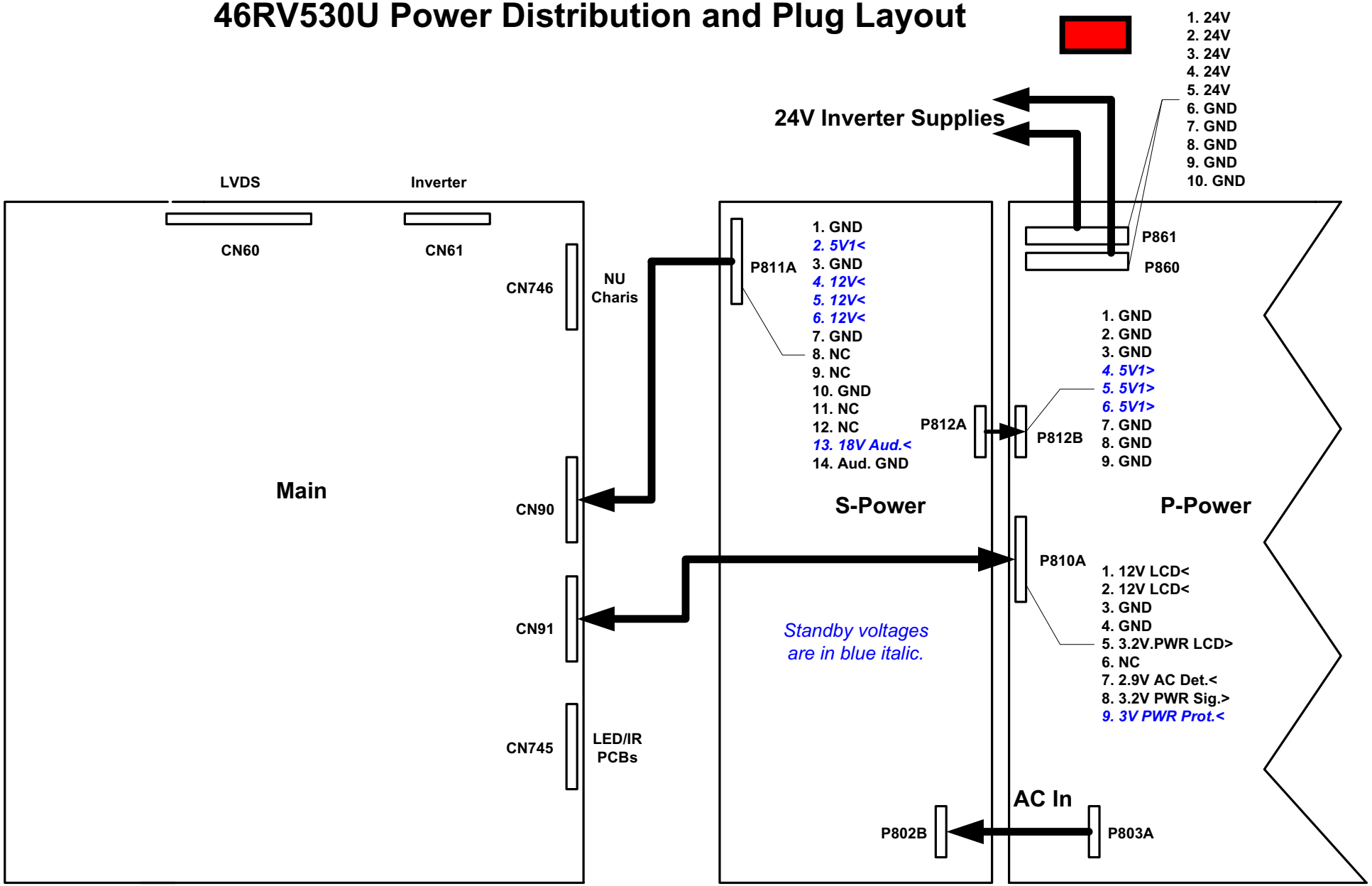
Note: If the TV loses A/C power (e.g., a power outage occurs or the power cord is unplugged), when power is restored, the yellow LED will blink while the TV is booting until the remote control is usable. This is normal and is not a sign of malfunction.



	RV530U	
MODE	**GREEN**	**YELLOW**
	●	●
POWER OFF (AC OFF)	○	○
POWER OFF (Standby Energy Save Mode)	○	○
POWER OFF (Standby Fast Start Mode)	○	●
POWER ON	●	○
IIC BUS Error	Slow Blink	○
Power Protect Detection	Fast Blink	○
Seine Booting	○	Blink 3 Times
Upgrade In Progress	●	●
Upgrade Successful	●	○
Upgrade Failed	○	●


SD Memory Card
SD
TV Micro-controller (2/2)
Panel Power On/Off(H:On)
Backlight On/Off(H:On)
Backlight Detect(H:On)
PWM En(H:Enable)
POWER_LCD
LPF
I2C
Uni-Signal
Bus
LCD Panel Module
HDMI 1
HDMI 2
HDMI 3
HDMI (Side) 4
EDID
HDMI Sw
I2C-0
DDC
HDMI-B
Port Select
HPD-Reset
HDMI-A
HPD-Reset for Port4
EDID-ROM Write CTL
TX49/H4
SD H/C
Graphic Plane
Capture Buf.
Display Buf.
VFE
VBE
VDEC
TSP
ASP
CG
BLnPWM
BL1PWM
LVDS
Low Color Shift(H:On,L:Off)
I2C-2(100kHz)
EDID-ROM(Side port)
I2C-1(400kHz)
EEPROM
I2C-0(100kHz)
EDID-ROM
ASDO
MUTE
ATXO
RGB
Video1
Video2(Side)
Component1
Component2
G/B/R/HD/VD
GBRHV/YCbCr/YC/CVBS
TVM
AV-SW
L/R
A/D
ASDI
AMCLKO
HDMI/RGB
HDMI Connector
IFOUT
IFAGC
IFAGCCTL
25M X'tal
XIN25
VSB/QAM
IF
Digital/ Analog Tuner
SIF
MTS(BTSC)
VIDEO
RFAGC
AFT
I2C-TVM1N
CEC-MIX
Reset(L:Normal)
Head(H:Valid)
Reset
Key
x7
KEYS
TV Micro-Controller (1/2)
I2C-TVM1
AVSW,MTS, APRO,D-AMP
I2C-TVM0
EEPROM
25M X'tal
PC-SW
EXT_MUTE
RMTIN
LED
IR
IR-OUT
TxD,RxD
Update/Ext I2C
LED/RM PCB
Power TV SW SIG
Power LCD SIG,PROTECT,AC_DET
DDR2-SDRAM Controller
DDR2 SDRAM
NOR Flash
TC90413XBG
27M X'tal
STCPWM
STCCLKI
PWM74CLKI
SS PLL
82/74.25MHz
VCXO
Freq. select (LL:74.25M, LH:82M)
CLKX
33.333MHz X'tal
XOIN2
4.2MHz X'tal
LEDx2
Debug Terminal
Main PCB
18V
5V
12V
Power PCB
AC120V
Optical out
I2C-TVM1
DSP
Speaker
D/A PCM1754
Audio out (Fixed)
AMCLKO

46RV530U Power Distribution and Plug Layout



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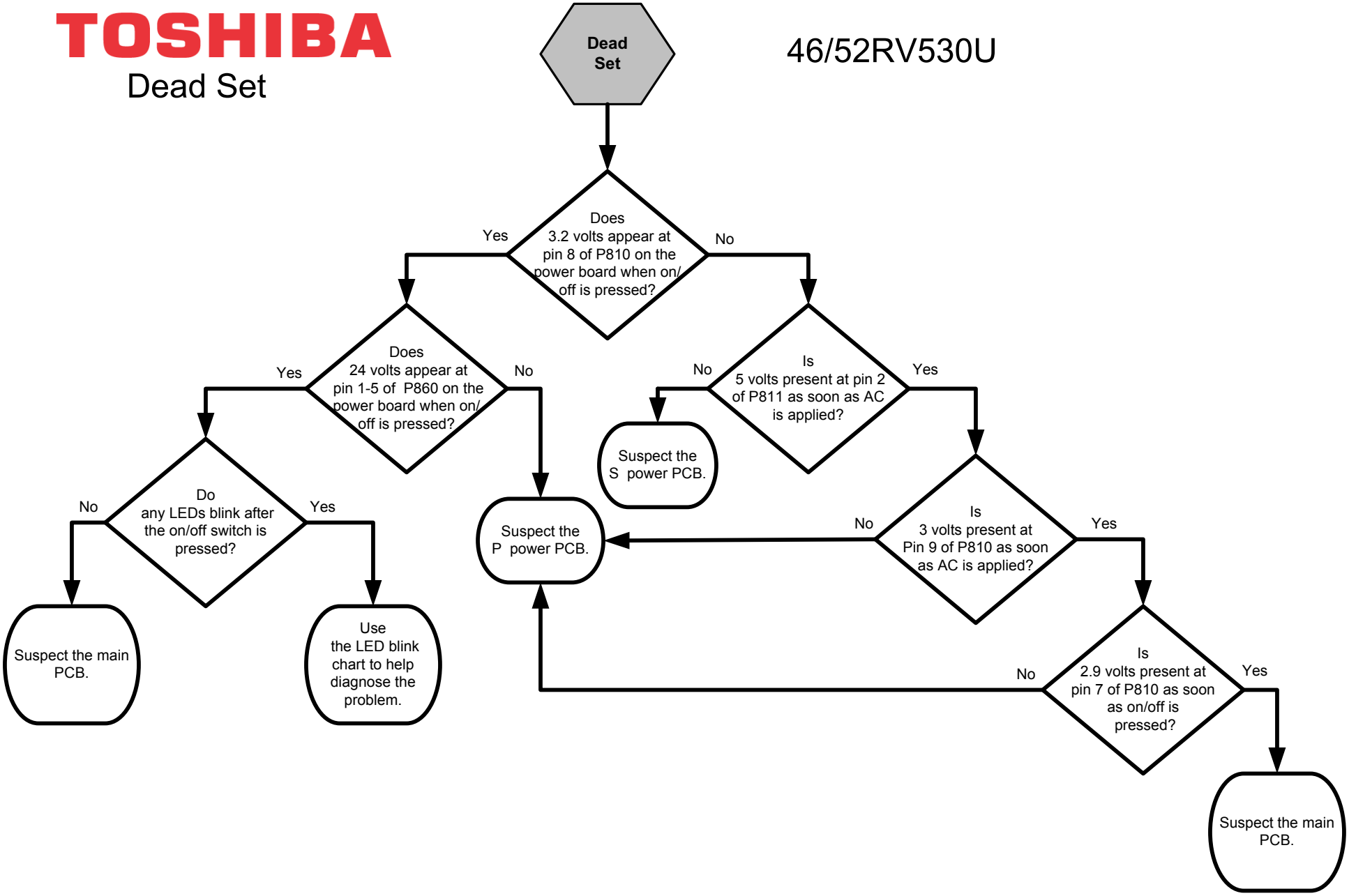
Dead Set

46/52RV530U



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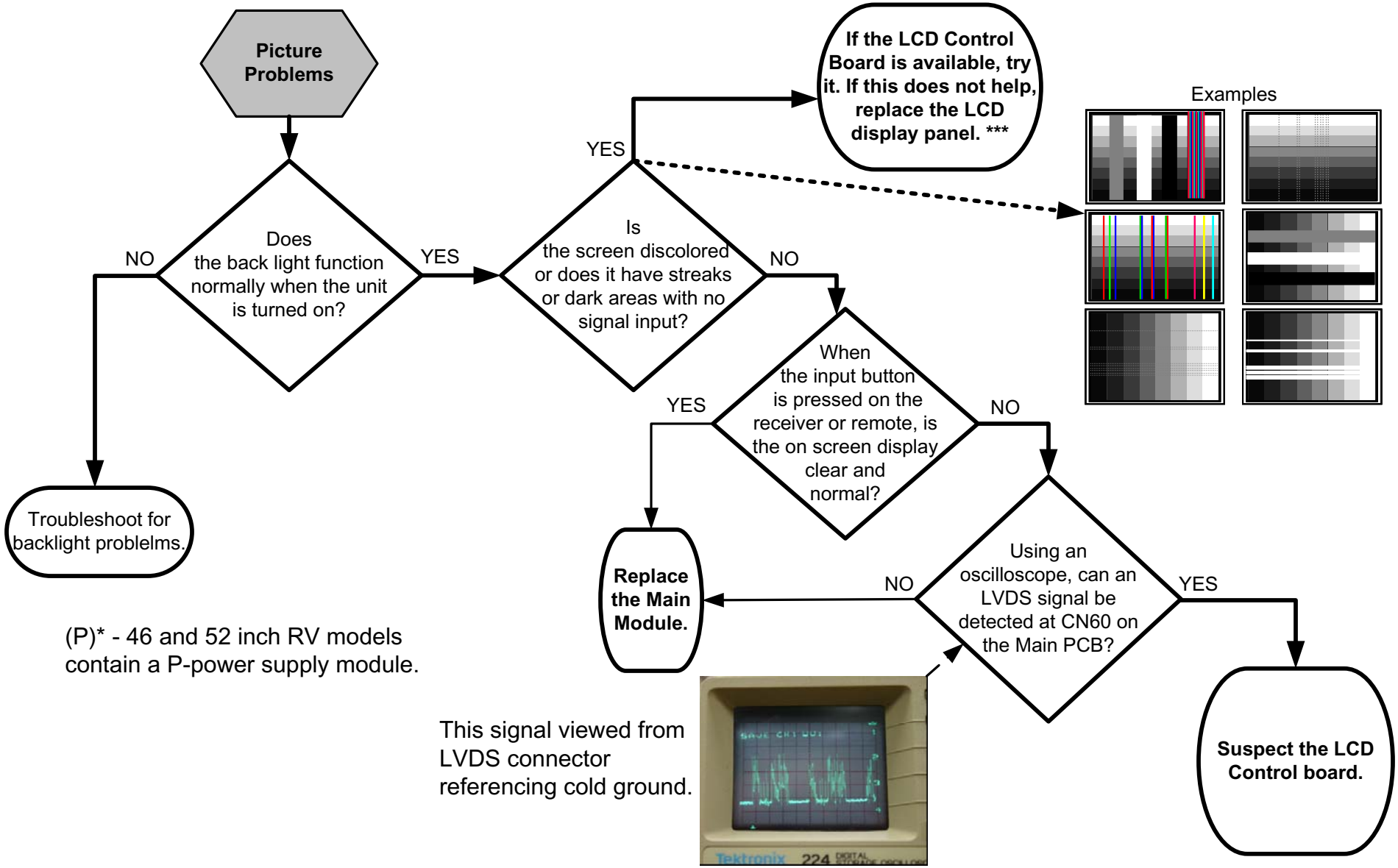
Picture Problems

***** Contact Toshiba at www7.tacp.com for warranty authorization**

32/37CV510, 32/37/42RV530-535U 46RV530-535U, 52RV530-535U



(P)* - 46 and 52 inch RV models contain a P-power supply module.

This signal viewed from LVDS connector referencing cold ground.

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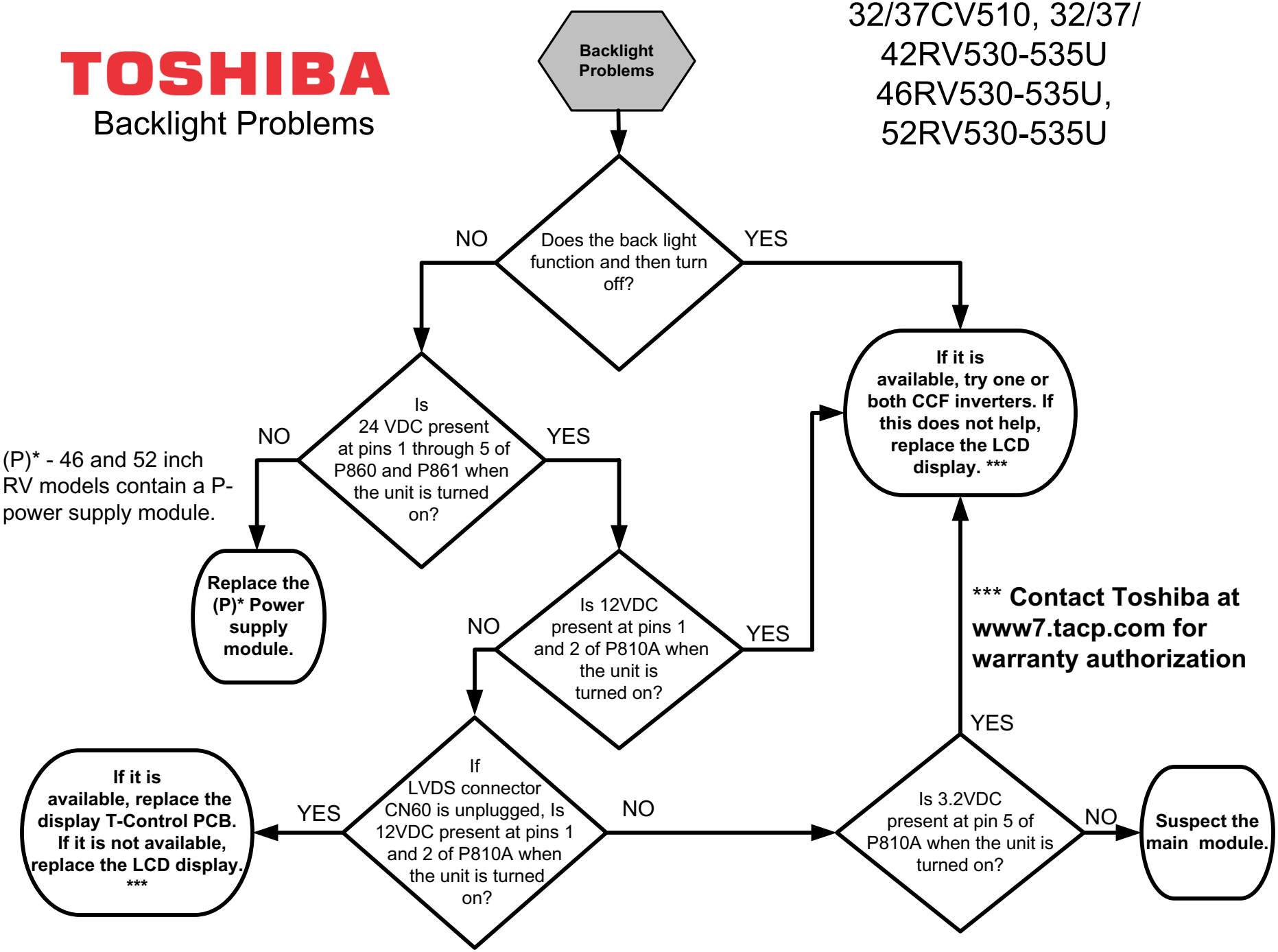
Backlight Problems

32/37CV510, 32/37/
42RV530-535U
46RV530-535U,
52RV530-535U



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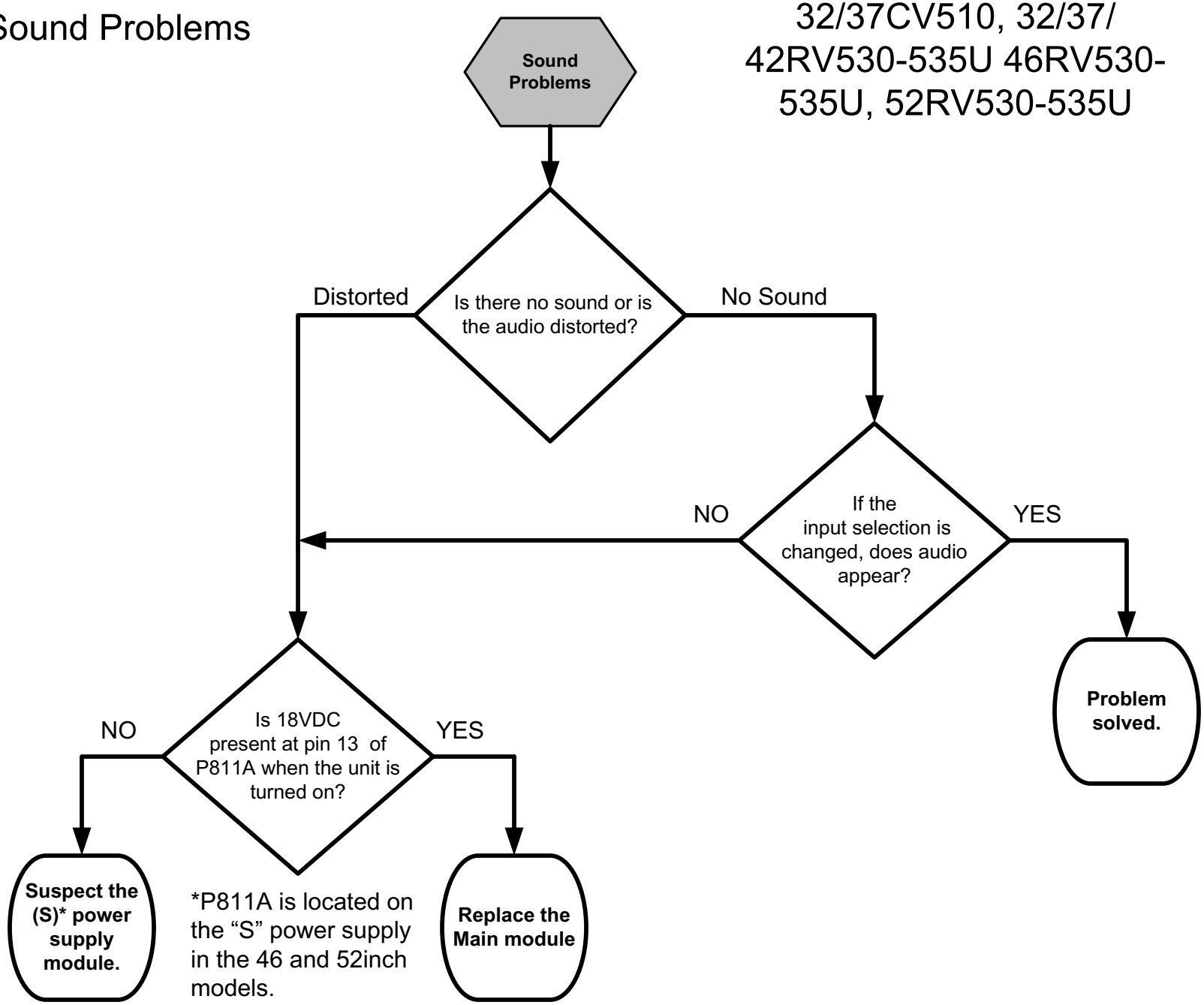
Sound Problems

32/37CV510, 32/37/42RV530-535U 46RV530-535U, 52RV530-535U



PARTS LIST

Precaution

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION" FOR DIRECT VIEW CTV ONLY, "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" OF THIS MANUAL.

CAUTION: The international hazard symbols "⚠" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the SAFETY PRECAUTION and PRODUCT SAFETY NOTICE.

Do not degrade the safety of the receiver through improper servicing.

Note:

- The part number must be used when ordering parts, in order to assist in processing, be sure to include the Model number and Description.

Location	Part No.	Description	Comments
**B001	75011245	DISPLAY , LTA460HB07	LCD Panel
A201	75011247	FRONT BEZEL ASSY 46RV530U, FRONT	Cabinet Front
A401	75011248	BACK COVER ASSY 46RV530U, BACK COVER	Cabinet Back
A420	75010936	LEG STAND LEG ASSY, STAND LEG ASSY 42RV500	Stand Leg
A421	75010935	BASE BASE ASSY, BASE ASSY 42RV500	Base
A422	75010937	CASTOR/LEG TOOL SET, TOOL SET	Castor tool and screws
K902	75010932	REMOCON HAND UNIT, CT-90302	Remote Control
MZ01	75011246	WIRE HARNESS, LVDS	LVDS Cable
P801	75002678	POWER CORD, INQ2682(1)	AC Cord
U01A	75012805	PC BOARD ASSY, PE0564A1,P-POWER	Power PCB
U02A	75011608	PC BOARD ASSY, PE0563A1, S-POWER, 46RV530U	Sub-Power PCB
U03AS	75012466	PC BOARD ASSY, PE0541A(46RV530U), MAIN	Main PCB
U04A	75010926	PC BOARD ASSY, PE0548C1, LED	LED PCB
U04B	75010927	PC BOARD ASSY, PE0548C2, REMOTE	Remote PCB
W661	75010928	SPEAKER ASSY 35X160 8-OHM 10W, SPK-1504AM	Speaker
Y102	75010933	MANUAL, OWNERS MANUAL E/F	Owners Manual

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TOSHIBA CORPORATION
1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO 105-8001, JAPAN